

Fig.1

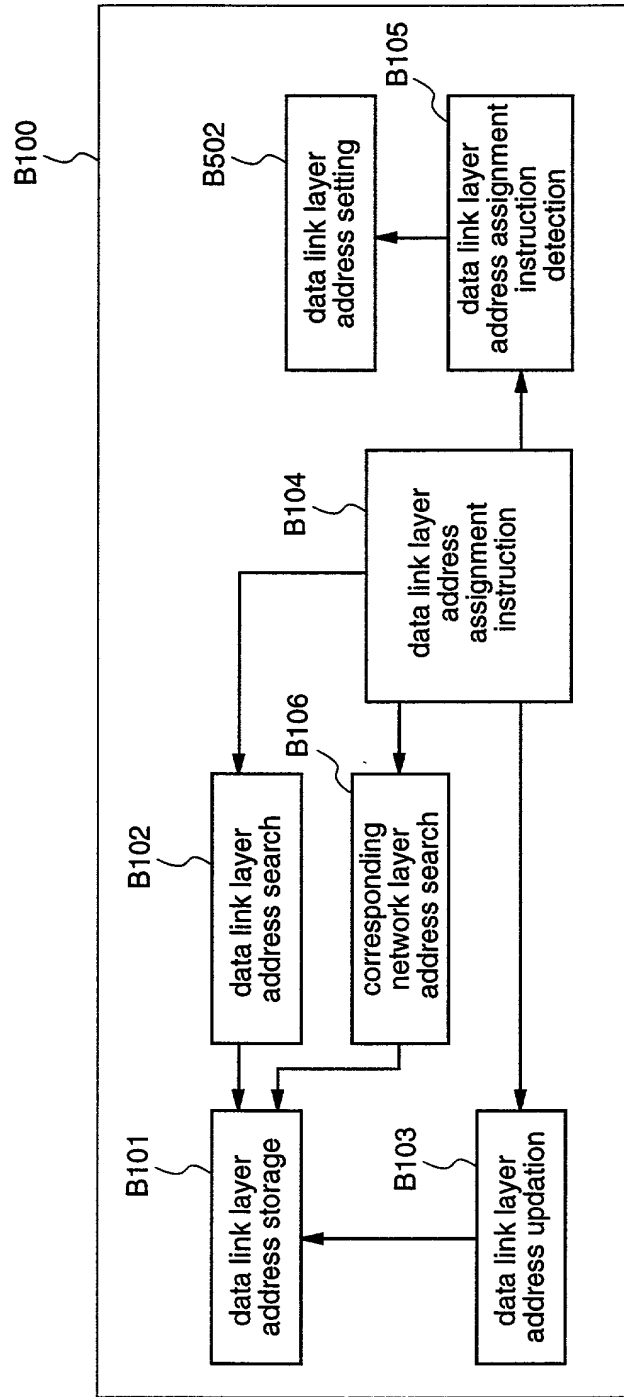


Fig.2

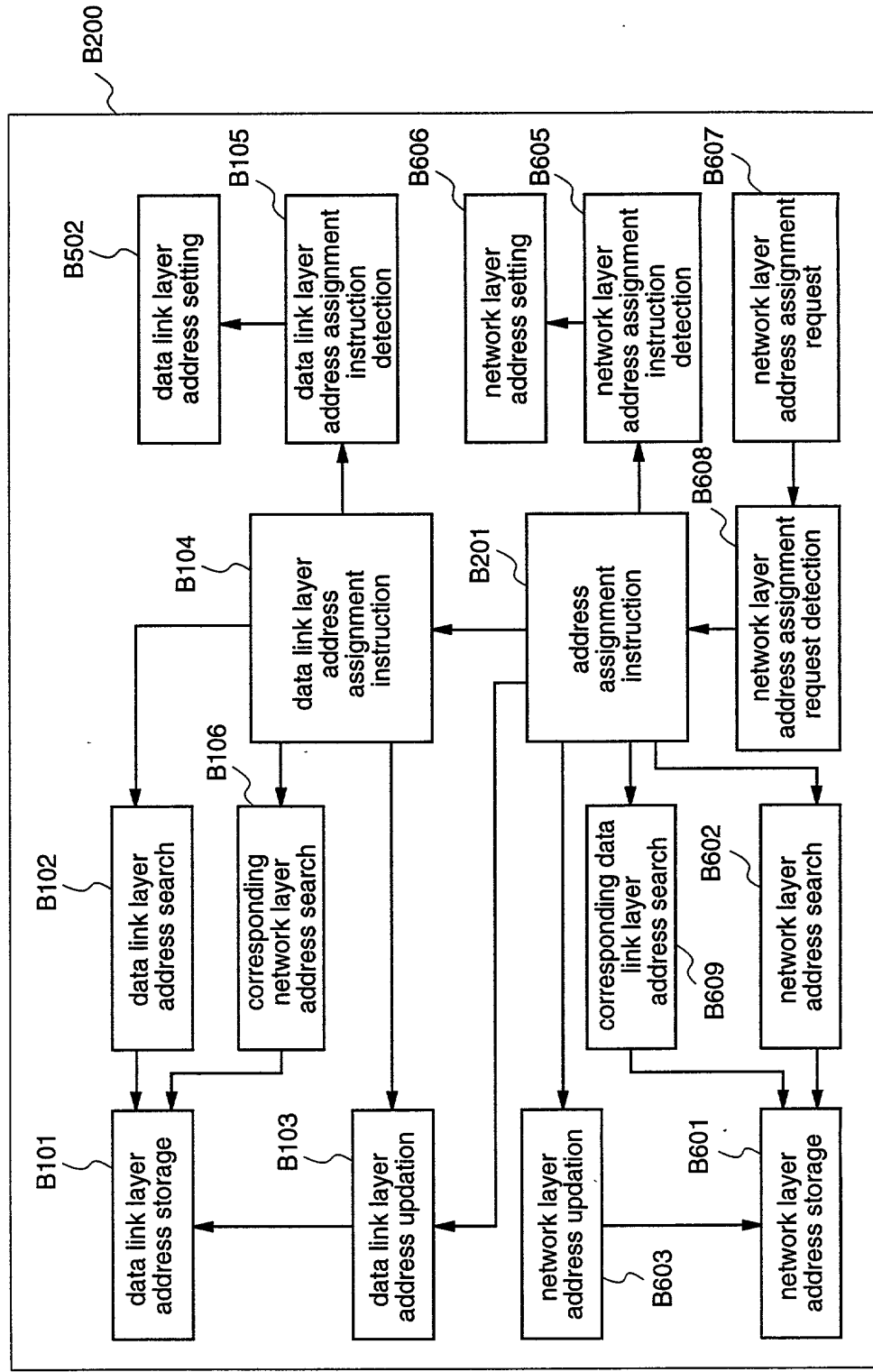


Fig. 3 is a block diagram of a system 300 for managing network addresses. The system 300 includes a data link layer address management module 301, a network layer address management module 302, and a network layer address request module 303. The data link layer address management module 301 includes a data link layer address storage 301a, a data link layer address search 301b, a data link layer address assignment instruction 301c, a data link layer address update 301d, and a data link layer address detection 301e. The network layer address management module 302 includes a network layer address storage 302a, a network layer address search 302b, a network layer address assignment instruction 302c, a network layer address update 302d, and a network layer address detection 302e. The network layer address request module 303 includes a network layer address request 303a and a network layer address request delay 303b. The system 300 is configured to manage network addresses by storing, searching, assigning, updating, and detecting addresses in both the data link layer and the network layer.

Fig.3

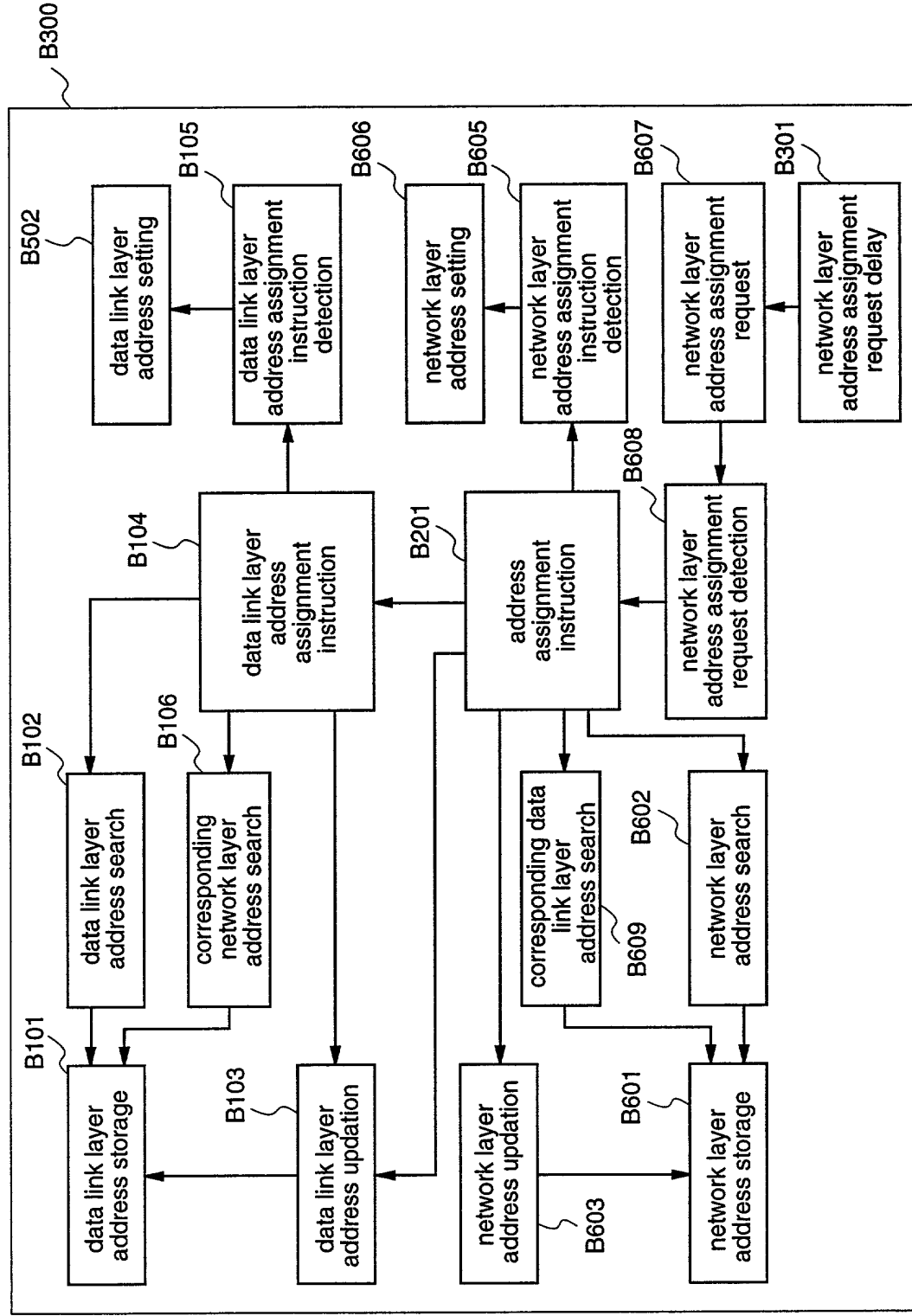


Fig.4

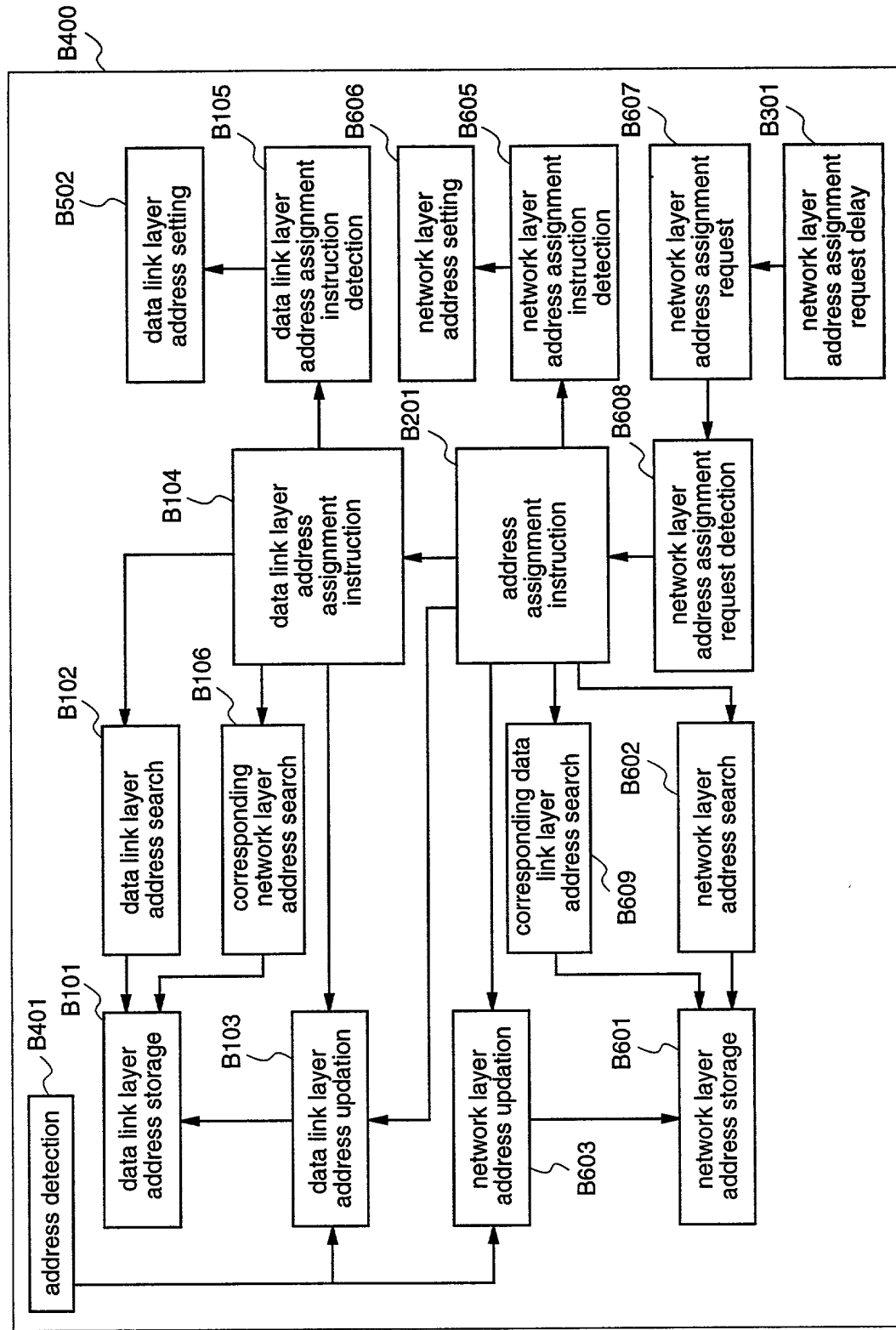


Fig.5 Prior Art

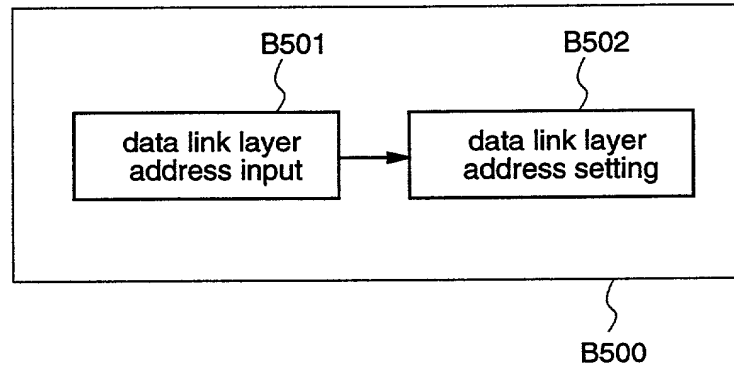


Fig.6 Prior Art

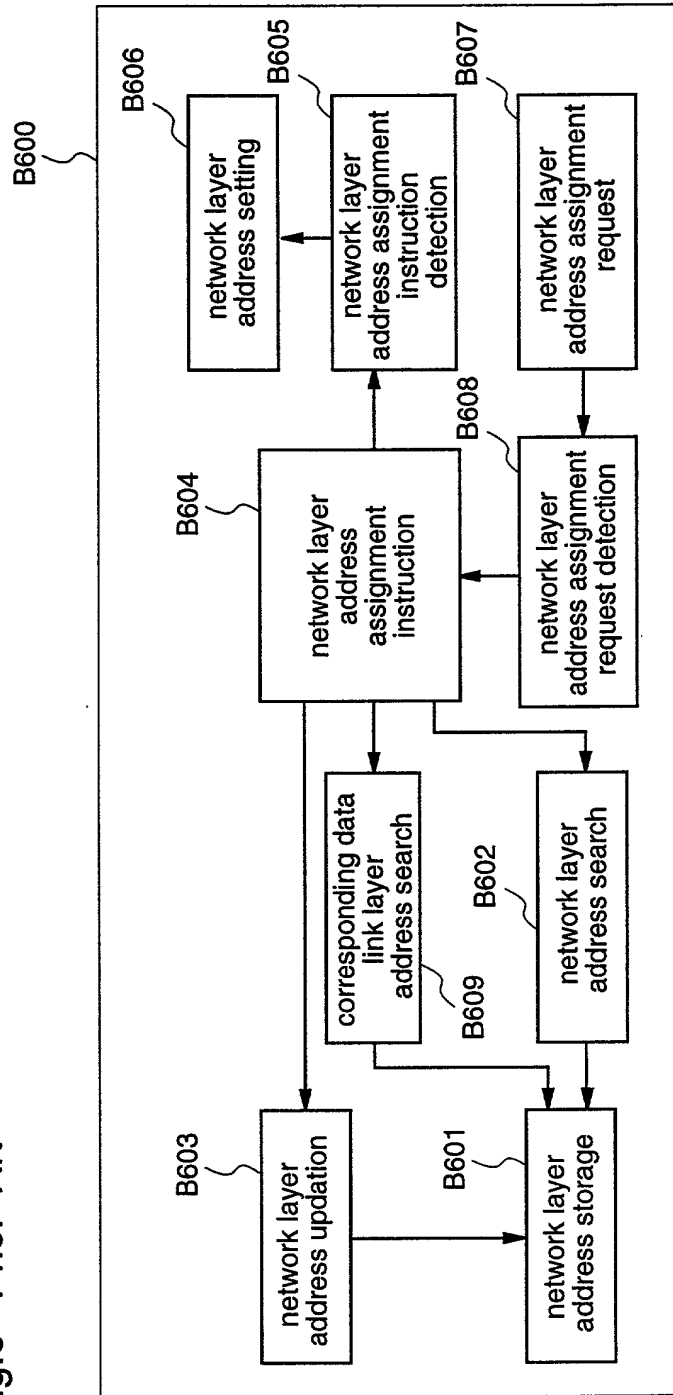


Fig.7

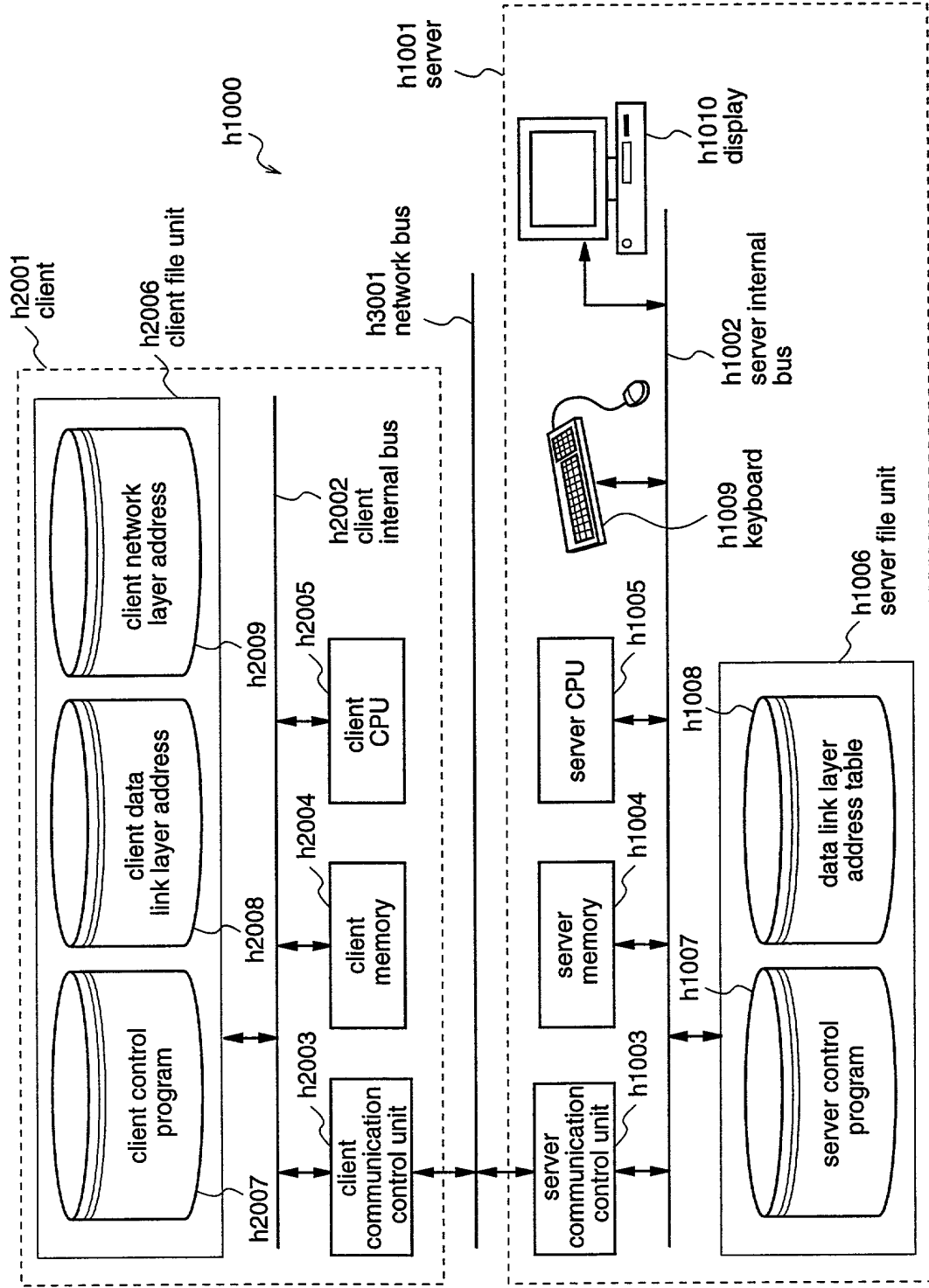


Fig.8

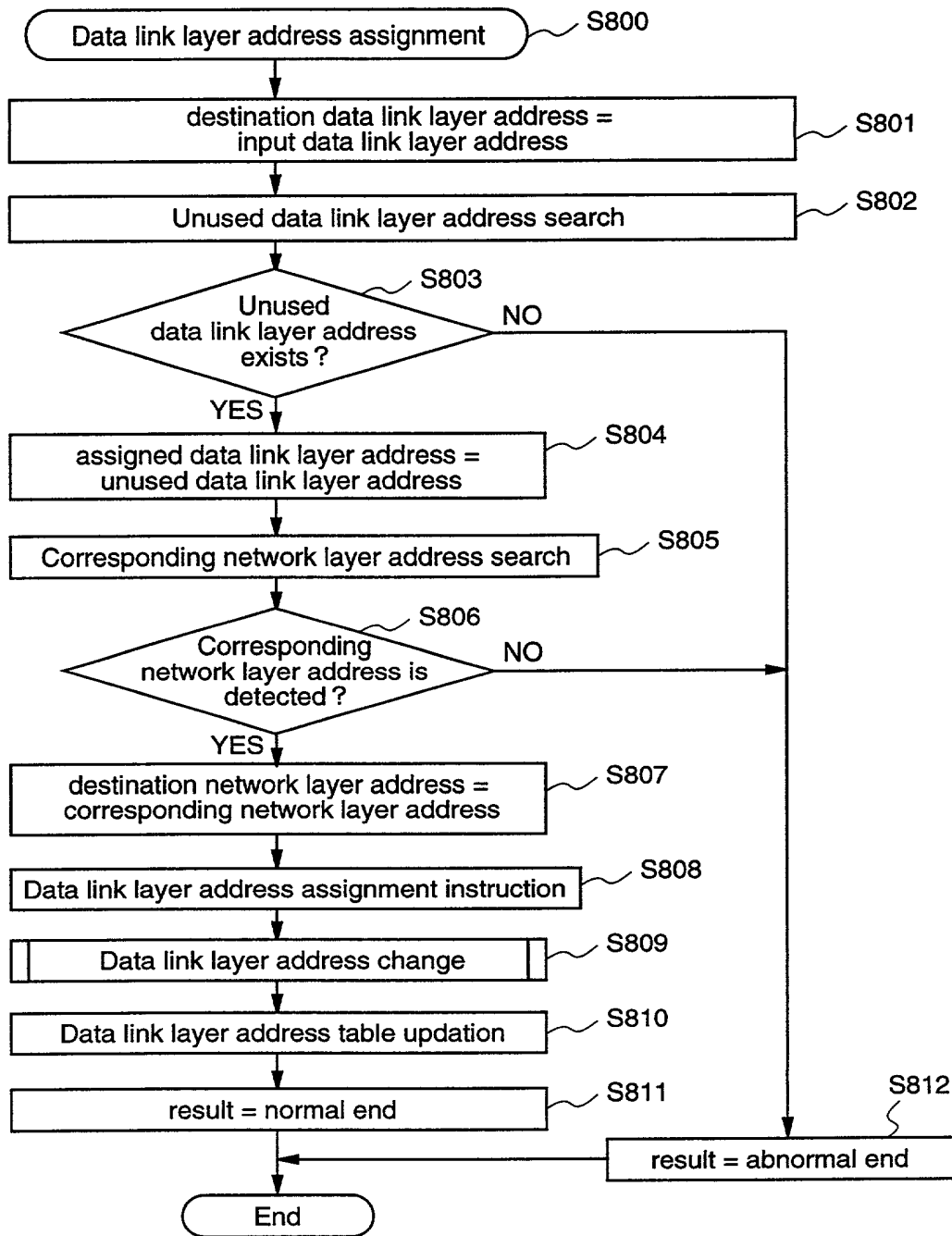




Fig.9

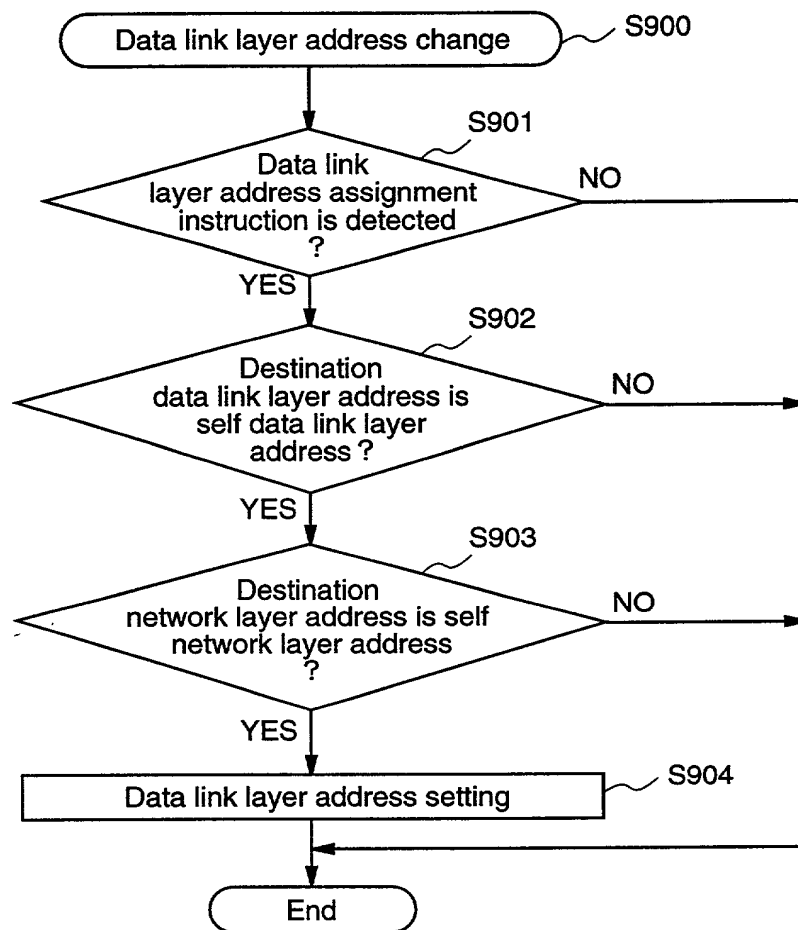


Fig.10(A)

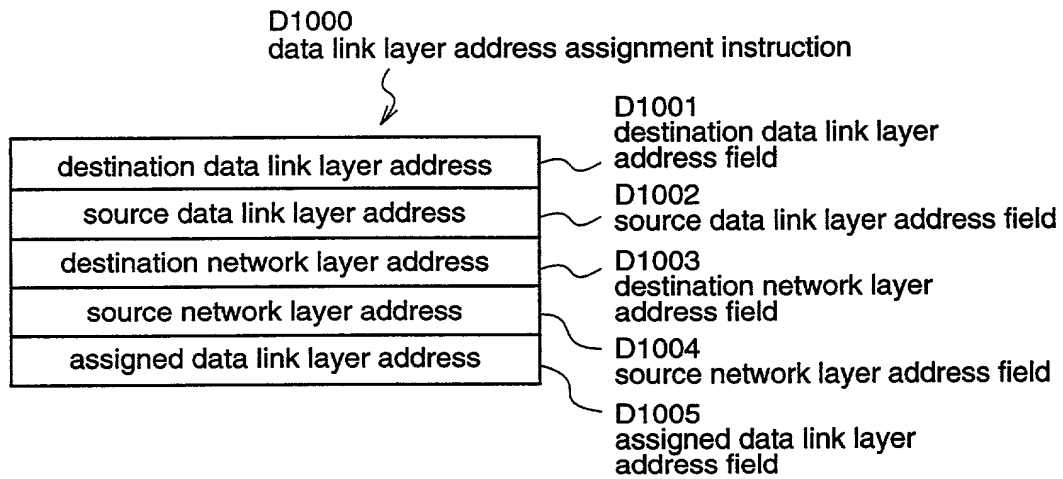


Fig.10(B)

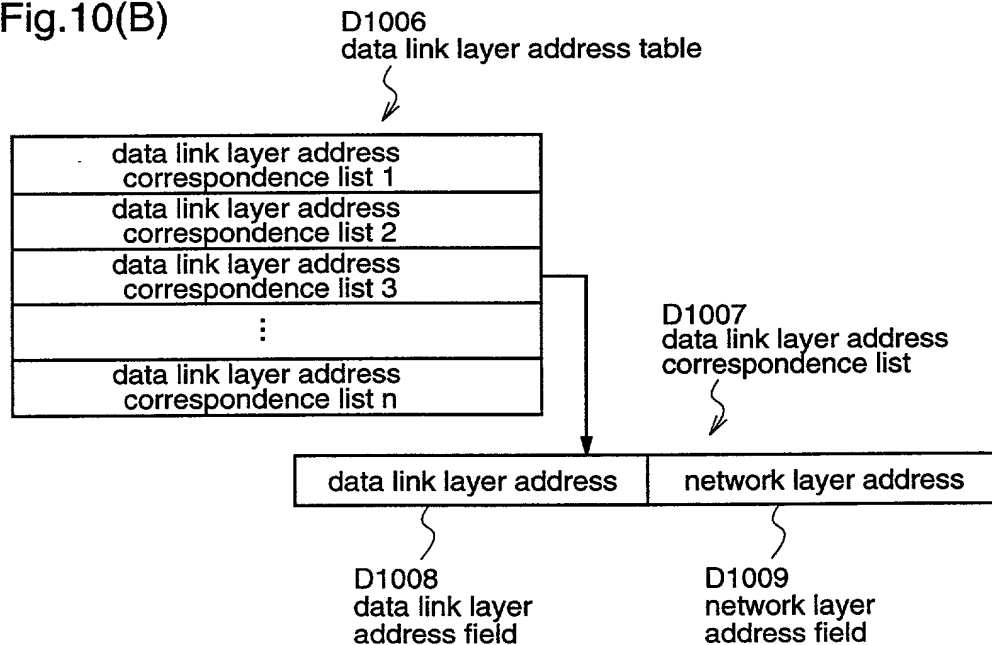


Fig.11

(a1) address state of server

network layer address	data link layer address
NA1	DA1

(a2) address state of server

network layer address	data link layer address
NA1	DA1

(b1) address state of client 1

network layer address	data link layer address
NA2	DA2

(b2) address state of client 1

network layer address	data link layer address
NA2	DA3

(d1) data link layer address table

data link layer address	network layer address
DA1	NA1
DA2	NA2
DA3	NULL
DA4	NULL

(d2) data link layer address table

data link layer address	network layer address
DA1	NA1
DA2	NULL
DA3	NA2
DA4	NULL

Fig.12

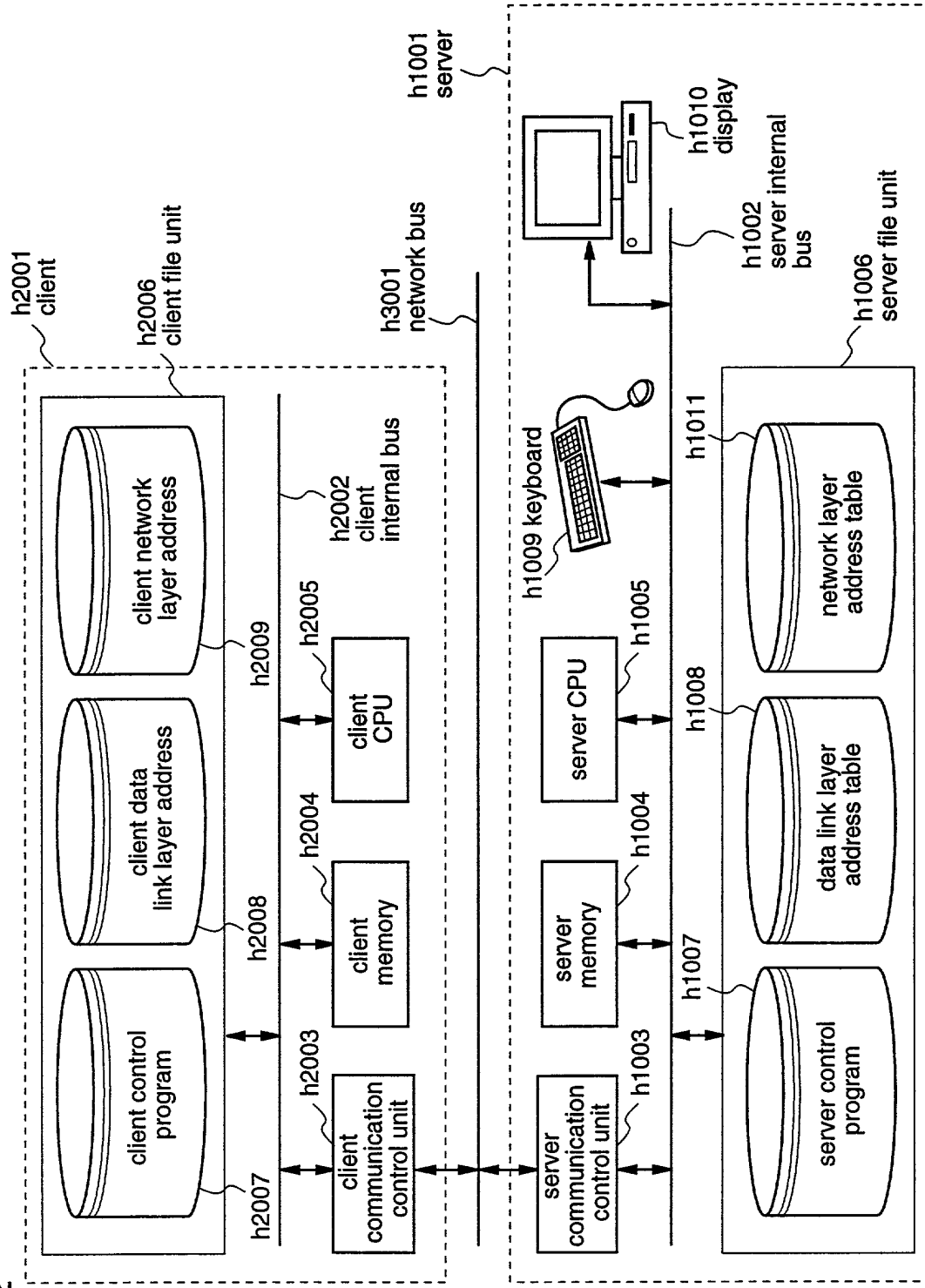


Fig.13

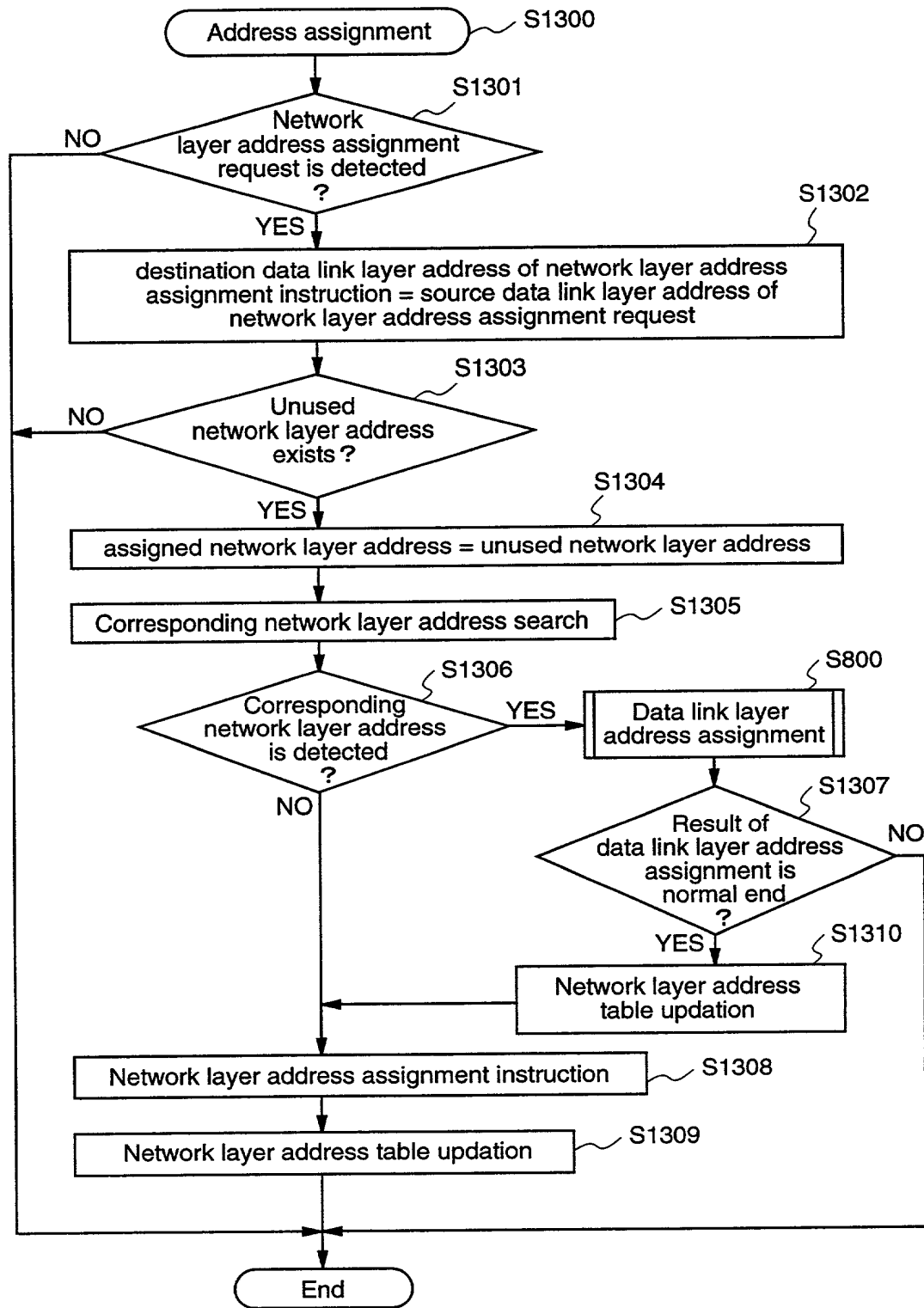


Fig.14

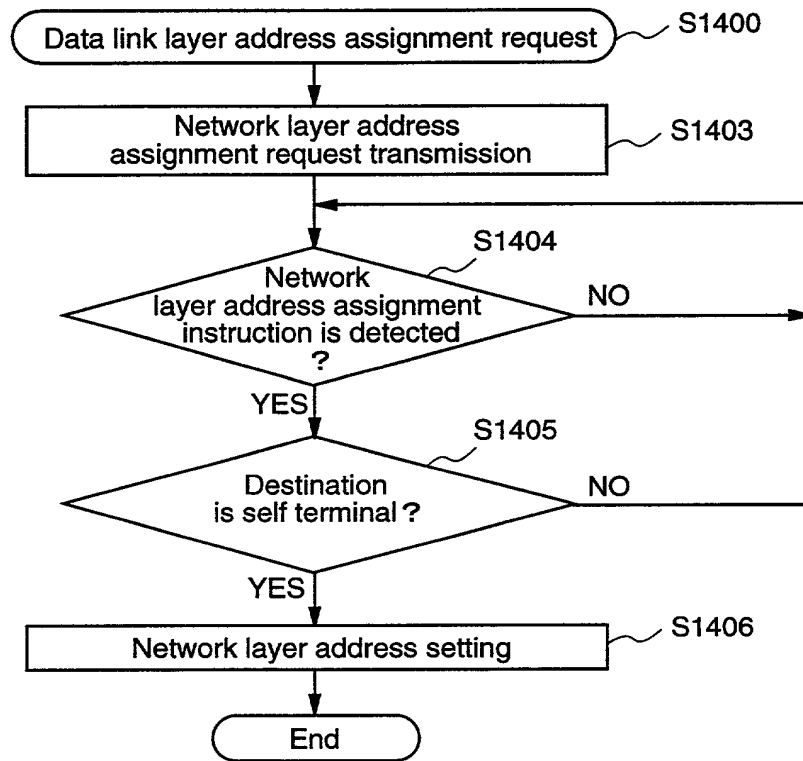


Fig.15 (A)

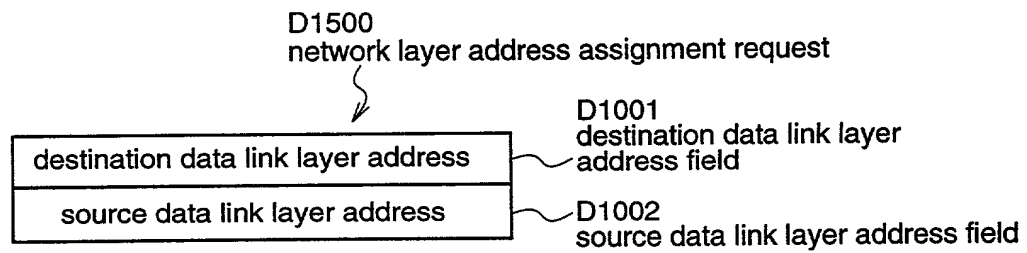


Fig.15 (B)

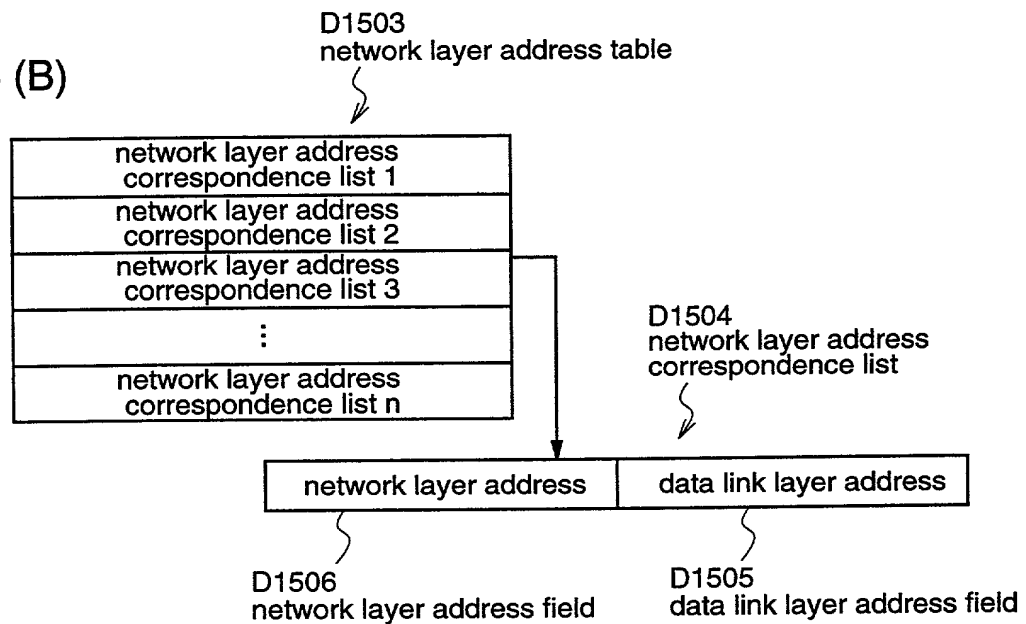


Fig.15 (C)

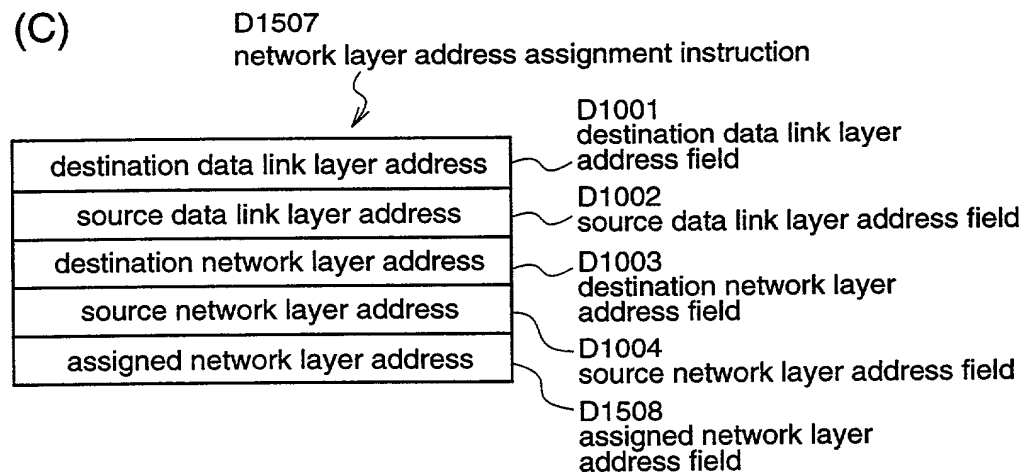


Fig.16

(a1)address state of server		(a2)address state of server		(a3)address state of server	
network layer address	data link layer address	network layer address	data link layer address	network layer address	data link layer address
NA1	DA1	NA1	DA1	NA1	DA1
(b1)address state of client 1		(b2)address state of client 1		(b3)address state of client 1	
network layer address	data link layer address	network layer address	data link layer address	network layer address	data link layer address
NA2	DA2	NA2	DA3	NA2	DA3
(c1)address state of client 2		(c2)address state of client 2		(c3)address state of client 2	
network layer address	data link layer address	network layer address	data link layer address	network layer address	data link layer address
NULL	DA2	NULL	DA2	NA3	DA2
(d1)data link layer address table		(d2)data link layer address table		(d3)data link layer address table	
data link layer address	network layer address	data link layer address	network layer address	data link layer address	network layer address
DA1	NA1	DA1	NA1	DA1	NA1
DA2	NA2	DA2	NULL	DA2	NA3
DA3	NULL	DA3	NA2	DA3	NA2
DA4	NULL	DA4	NULL	DA4	NULL
(e1)network layer address table		(e2)network layer address table		(e3)network layer address table	
network layer address	data link layer address	network layer address	data link layer address	network layer address	data link layer address
NA1	DA1	NA1	DA1	NA1	DA1
NA2	DA2	NA2	DA3	NA2	DA3
NA3	NULL	NA3	NULL	NA3	DA2
NA4	NULL	NA4	NULL	NA4	NULL



Fig.17

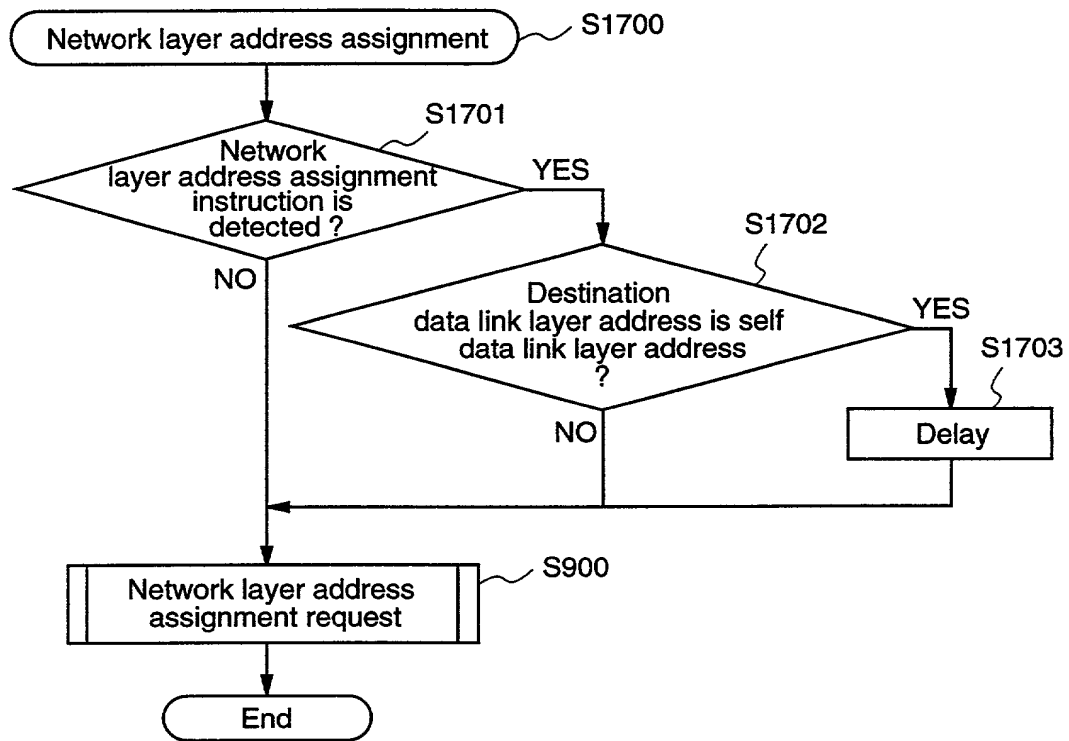


Fig.18

(a1)address state of server			(a2)address state of server			(a3)address state of server			(a4)address state of server		
network layer address	data link layer address	DA1	network layer address	data link layer address	DA1	network layer address	data link layer address	DA1	network layer address	data link layer address	DA1
NA1			NA1			NA1			NA1		

(b1)address state of client 1			(b2)address state of client 1			(b3)address state of client 1			(b4)address state of client 1		
network layer address	data link layer address	DA2	network layer address	data link layer address	DA2	network layer address	data link layer address	DA3	network layer address	data link layer address	DA3
NULL			NA2			NA2			NA2		

(c1)address state of client 2			(c2)address state of client 2			(c3)address state of client 2			(c4)address state of client 2		
network layer address	data link layer address	DA2	network layer address	data link layer address	DA2	network layer address	data link layer address	DA2	network layer address	data link layer address	DA2
NULL			NULL			NULL			NA3		

(d1)data link layer address table			(d2)data link layer address table			(d3)data link layer address table			(d4)data link layer address table		
data link layer address	network layer address		data link layer address	network layer address		data link layer address	network layer address		data link layer address	network layer address	
DA1	NA1		DA1	NA1		DA1	NA1		DA1	NA1	
DA2	NULL		DA2	NA2		DA2	NULL		DA2	NA3	
DA3	NULL		DA3	NULL		DA3	NA2		DA3	NA2	
DA4	NULL		DA4	NULL		DA4	NULL		DA4	NULL	

(e1)network layer address table			(e2)network layer address table			(e3)network layer address table			(e4)network layer address table		
network layer address	data link layer address		network layer address	data link layer address		network layer address	data link layer address		network layer address	data link layer address	
NA1	DA1		NA1	DA1		NA1	DA1		NA1	DA1	
NA2	NULL		NA2	DA2		NA2	DA3		NA2	DA3	
NA3	NULL		NA3	NULL		NA3	NULL		NA3	DA2	
NA4	NULL		NA4	NULL		NA4	NULL		NA4	NULL	

Fig.19

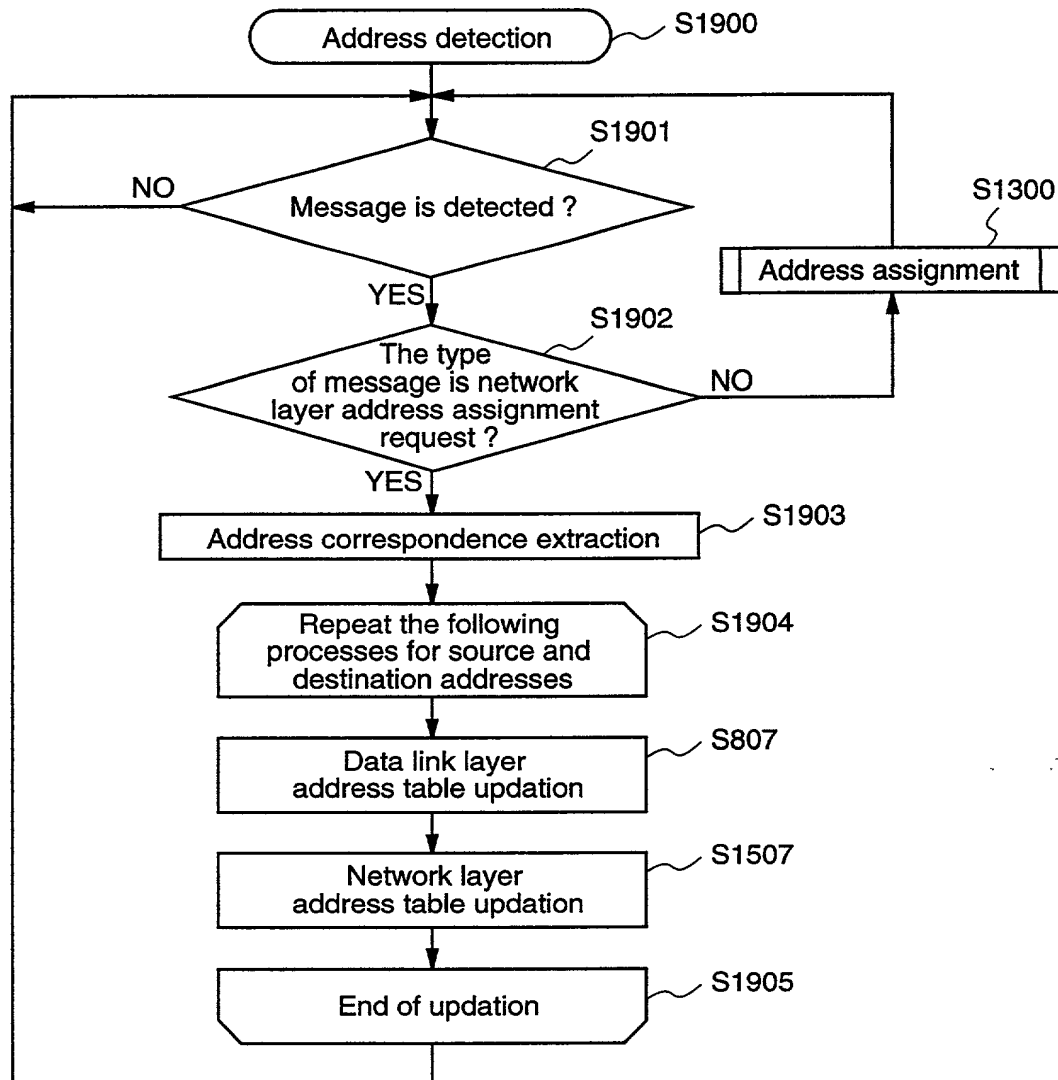


Fig.20

(a1)address state of server

network layer address	data link layer address
NA1	DA1

(b1)address state of client 1

network layer address	data link layer address
NA3	DA3

(c1)address state of client 2

network layer address	data link layer address
NA2	DA3

(d1)data link layer address table

data link layer address	network layer address
DA1	NA1
DA2	NA2
DA3	NULL
DA4	NULL

(e1)network layer address table

network layer address	data link layer address
NA1	DA1
NA2	DA2
NA3	NULL
NA4	NULL

(a2)address state of server

network layer address	data link layer address
NA1	DA1

(b2)address state of client 1

network layer address	data link layer address
NA3	DA3

(c2)address state of client 2

network layer address	data link layer address
NA2	DA3

(d2)data link layer address table

data link layer address	network layer address
DA1	NA1
DA2	NA2
DA3	NA3
DA4	NULL

(e2)network layer address table

network layer address	data link layer address
NA1	DA1
NA2	DA2
NA3	DA3
NA4	NULL

(a3)address state of server

network layer address	data link layer address
NA1	DA1

(b3)address state of client 1

network layer address	data link layer address
NA3	DA3

(c3)address state of client 2

network layer address	data link layer address
NA2	DA3

(d3)data link layer address table

data link layer address	network layer address
DA1	NA1
DA2	NULL
DA3	NA2
DA4	NULL

(e3)network layer address table

network layer address	data link layer address
NA1	DA1
NA2	DA3
NA3	NULL
NA4	NULL

Fig.21 Prior Art

